

XM297 CANNON SYSTEM FOR THE CRUSADER SYSTEM:

"A Unique Government - Industry Team"

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United Defense

**Benet Laboratories/Close Combat Armaments Center
Armaments Research Development & Engineering Center (ARDEC)
Tank automotive & Armaments Command (TACOM)**

**Armament Systems Division
United Defense - Limited Partnership**

34th ANNUAL GUN & AMMUNITION
SYMPOSIUM & EXHIBITION
26-29 APRIL 1999

CRUSADER



BRIEFING OUTLINE

- CRUSADER SYSTEM DESCRIPTION
- CRUSADER -"THE ARMY'S FLAGSHIP DEVELOPMENT PROGRAM"
-
- 155MM XM297 CANNON
- CANNON DEVELOPMENT SCHEDULE
-
- SIGNIFICANT ACCOMPLISHMENTS
-



What is Crusader?

The Next Generation Field Artillery System of Systems . . .
155mm Self-Propelled Howitzer and its Companion Armored Resupply Vehicle

Ground Up
Development

System of
Systems

CRUSADER
IS SPH AND
RSV



Innovative
Acquisition
Strategy

Why Crusader? . . .

- More Mobile
 - More Lethal
 - More Survivable
 - Enhanced Supportability
 - Less Manpower Intensive

Common Componentry

- 66% Common
- 24% SPH
Unique
- 10% RSV
Unique

CRUSADER



Why Crusader? 21st Century (Crusader)

US Forces Need a More Lethal, Mobile, Survivable Howitzer

Crusader Provides Technology and Firepower for the 21st Century Warfighter

Rate of Fire

4 RPM

10-12 RPM

XM297 Requirements

- † Burst Fire - 10 rounds/min for 3 mins
- † Sustained Fire 3 rounds/min for 10 mins

Range

30 KM

Threat Systems Shoot up to 9 Rounds per Minute at Ranges in Excess of 40 Km

40-50 KM

- † Max Range - 40 km
- † Min Range - 4 km

Mobility

28 KM/HR

39-48 KM/HR

- † Minimum Weight
- † Improve Survivability

Manpower

9 Soldier Crew

6 Soldier Crew

- † High Reliability
- † Extended Service Life
- † Increased Maint. Intervals
- † Automated Operation

A Quantum Leap in Total Force Effectiveness

CRUSADER



CRUSADER

United Defense

“THE ARMY’S FLAGSHIP DEVELOPMENT PROGRAM”

- **IMPLEMENTS STREAMLINED ACQUISITION**
-
- **CONSOLIDATES RESPONSIBILITY TO THE PRIME CONTRACTOR**
-
- **AVOIDS USING GOVERNMENT FURNISHED MATERIALS (GFM)**



TRADITIONAL DEVELOPMENTS

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FOCUS ON GOVERNMENT FURNISHED MATERIALS

Programmatic Direction:
Howitzer System (Less Armaments Sub-system)
Configuration Conflict Resolution

Programmatic Direction:
Armaments Sub-system
Funding
Configuration Conflict Resolution

PRIME CONTRACTOR

Office of the Project Manager

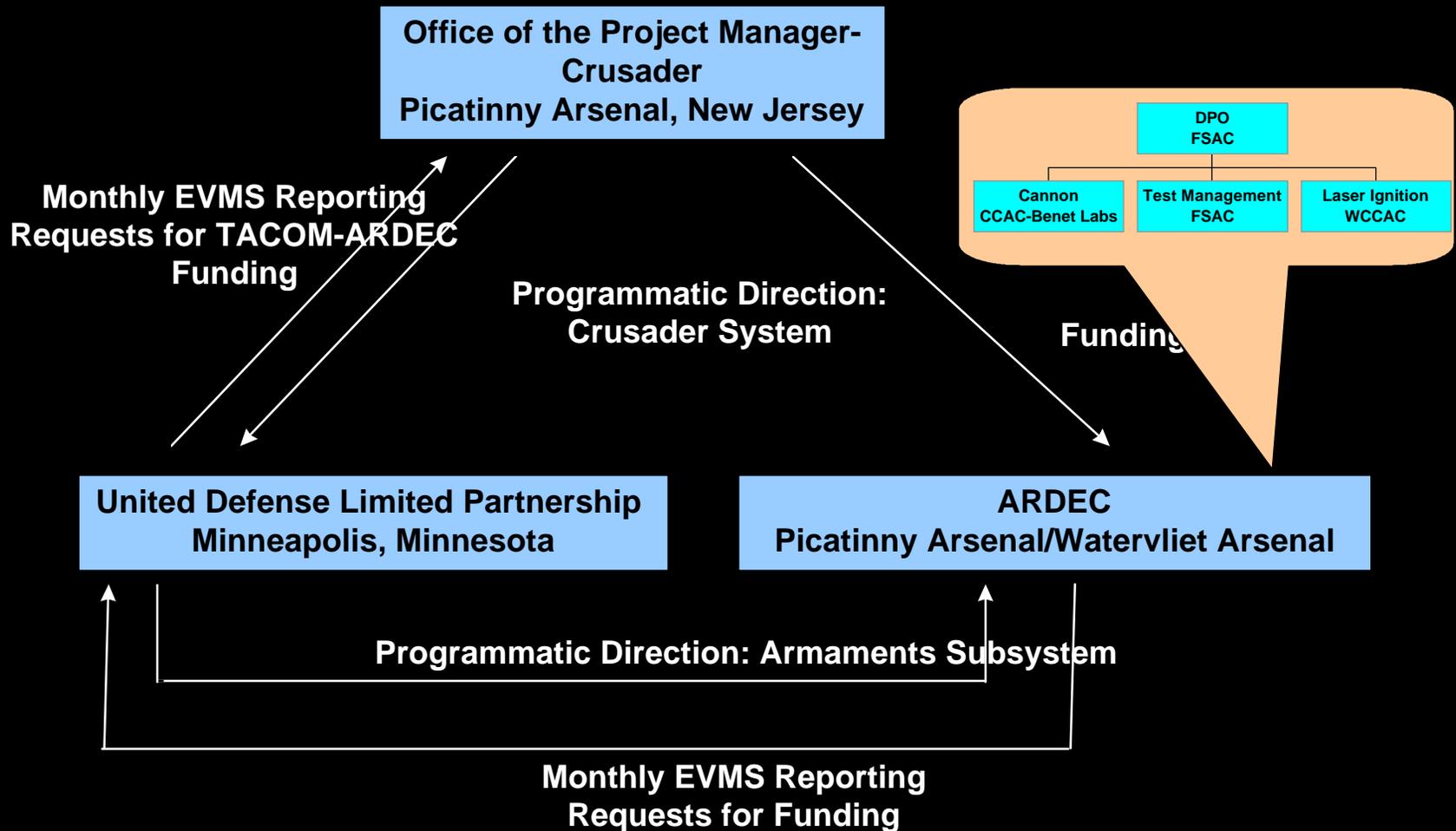
ARDEC/Picatinny

Monthly EVMS Reporting
Configuration Conflict Issues

Quarterly Government Internal Reporting
Requests for Funding
Configuration Conflict Issues



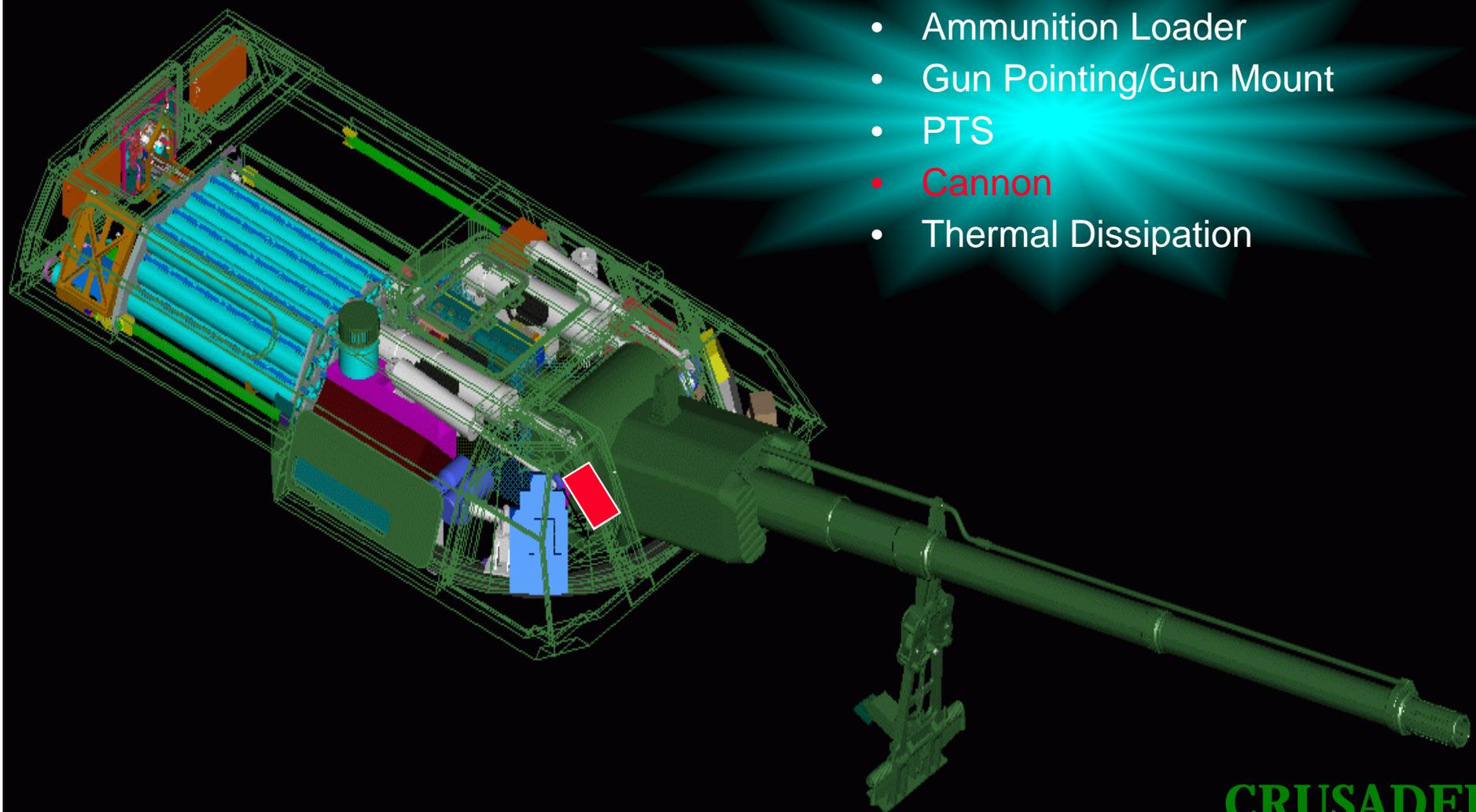
THE CRUSADER RELATIONSHIPS





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FIREPOWER ELEMENT



- Ammunition Loader
- Gun Pointing/Gun Mount
- PTS
- Cannon
- Thermal Dissipation

CRUSADER



155 mm XM297 CANNON SUBSYSTEM

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- **GOAL - DEVELOP ARTILLERY CANNON WITH:**
 - INCREASED RANGE
 - HIGHER RATES OF FIRE
 - SIGNIFICANTLY INCREASED SUSTAINED RATE OF FIRE
-
- **DESCRIPTION: XM297 CANNON DEVELOPED FOR CRUSADER**
 - 56 CALIBERS IN LENGTH
 - FULL LENGTH COOLING
 - INTEGRAL MUZZLE BRAKE
 - LASER IGNITION
 - FULLY AUTOMATED BREECH OPERATION
 - COMPLETE INTEGRATION WITH AUTOLOADER
-



XM297 CANNON SUBSYSTEM

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CRUSADER

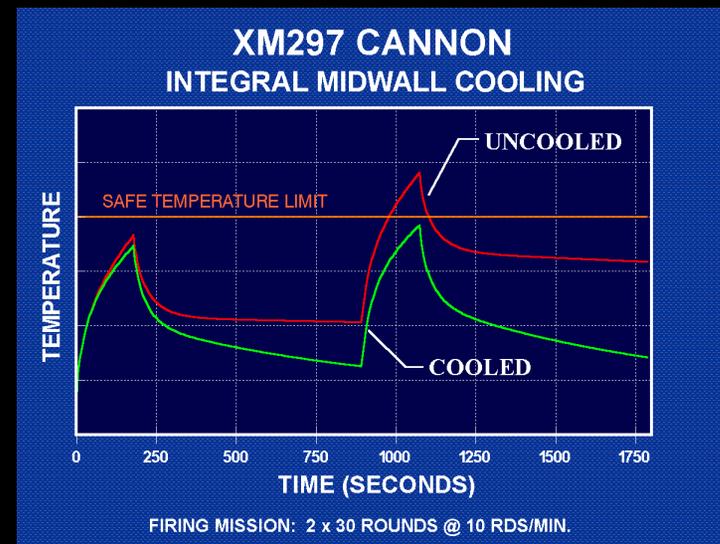
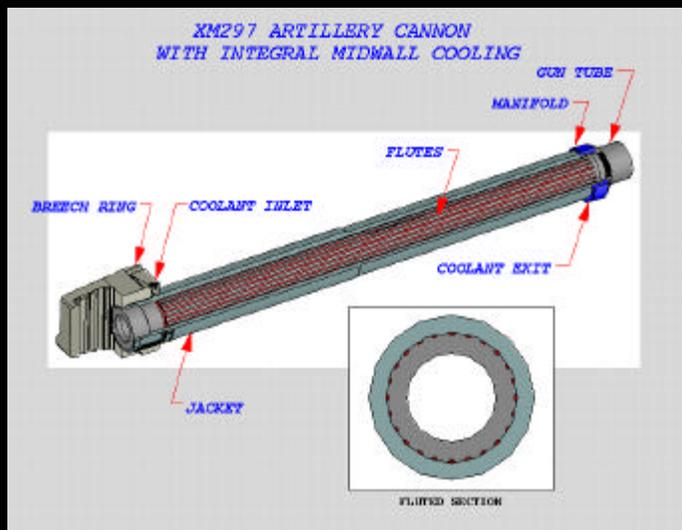


155MM XM297 CANNON

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UNIQUE FEATURES

- **FULL LENGTH COOLING**
 - ENABLES HIGH AND SUSTAINED FIRING RATES
 - REDUCES RISK OF PROPELLANT COOKOFF
 - REDUCES RISK OF PROJECTILE EXUDATION
 - IMPROVES ACCURACY AND DISPERSION
 - INCREASES TUBE WEAR LIFE



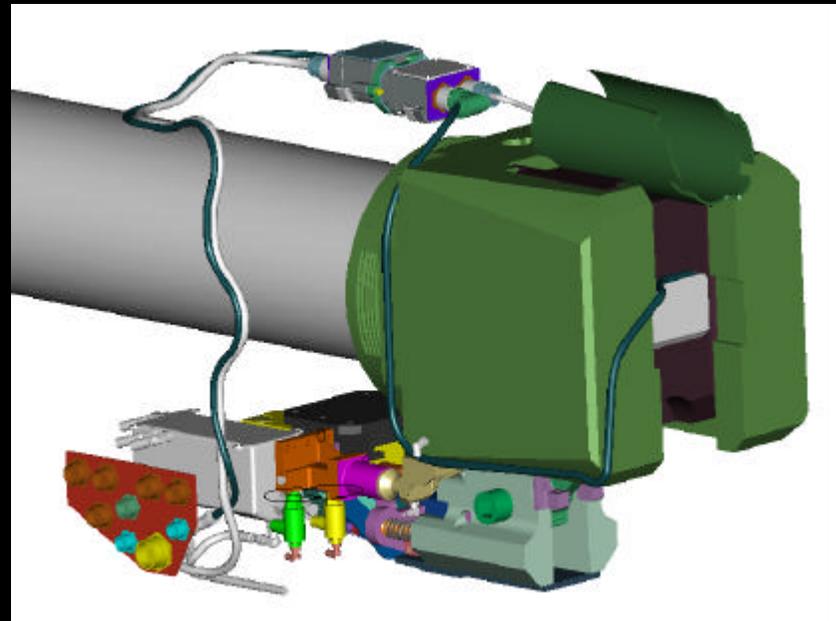


155MM XM297 CANNON

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UNIQUE FEATURES

- **LASER IGNITION SYSTEM**
 - ELIMINATES BURDEN OF CONSUMABLE PRIMERS
 - REDUCES OPERATIONAL COSTS
 - ENABLES AUTOMATED FIRING
 - REDUCES RISK OF MISFIRE
 - INCREASED IGNITION RELIABILITY



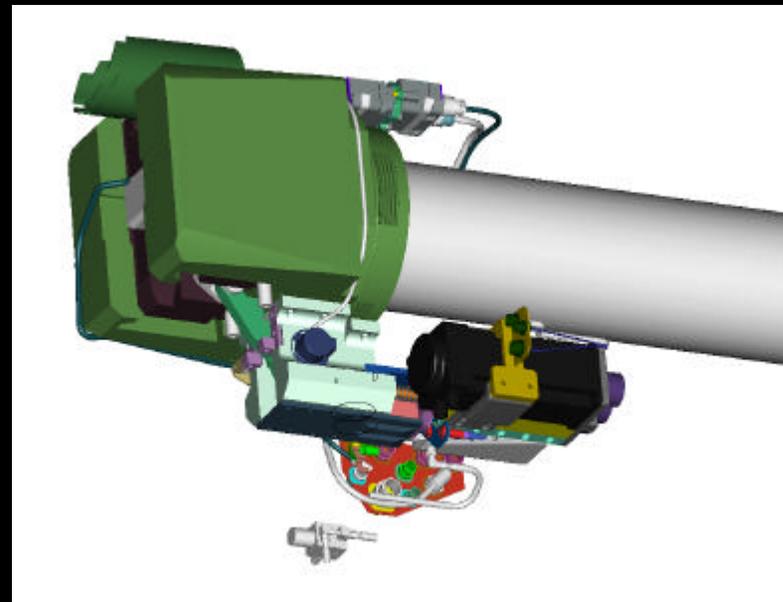


155MM XM297 CANNON

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UNIQUE FEATURES

- **AUTOMATED OPERATION**
 - NO CREW IN THE WEAPONS COMPARTMENT
 - ENABLES AUTO LOADING/REDUCED CREW SIZE
 - MAXIMIZES RATE OF FIRE
 - MINIMIZES VEHICLE SIZE





SUCCESS POINTS IN THIS ACTIVITY

- NEGOTIATIONS WERE VERY SMOOTH
- TEAM LEVEL COMMUNICATIONS HAVE BEEN EXCELLENT
- TECHNICAL ISSUES TACKLED AND SOLVED JOINTLY
- CANNON DELIVERED:

**HARDWARE INTEGRATED INTO
CRUSADER TURRET, CANNON
AND MOUNT PROOF FIRED**





155MM XM297 CANNON

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XM297E2 CANNON

HARDWARE

BREECH DELIVERY

TUBE DELIVERY

CANNON TESTS

PROOF

PDRR CANNON
CHECKOUT

PRELIM FIRING TABLES

TUBE WEAR

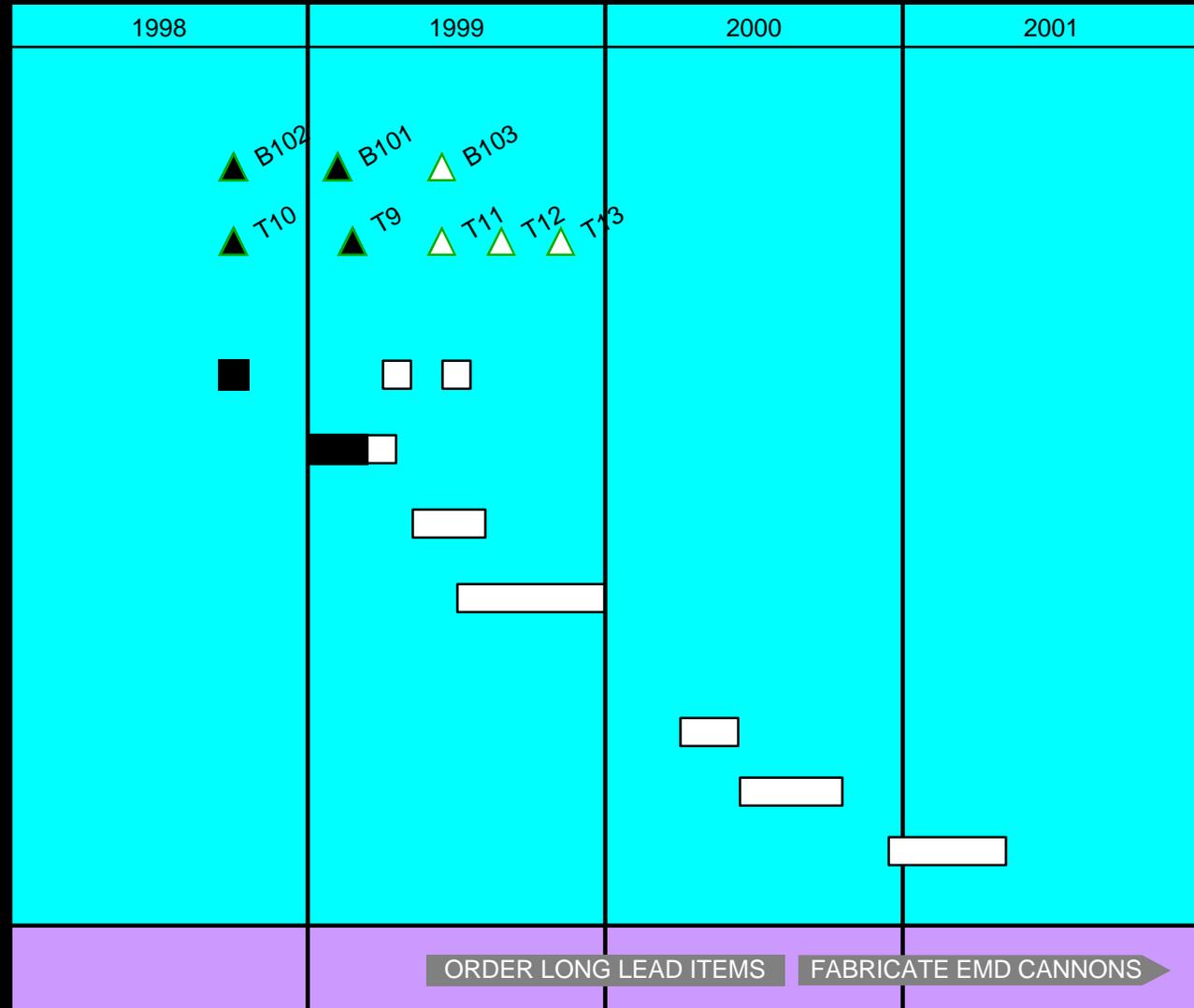
VEHICLE FIRING TESTS

SHAKEDOWN

EDT/EUE

GOVERNMENT

EMD ACTIVITIES





155MM XM297 CANNON

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SIGNIFICANT ACCOMPLISHMENTS

- BREECH MOUNTED LASER IGNITER FIRED & SHOCK TESTED
- CANNON FIRED AT 8.6 ROUNDS/MIN
- FULL LENGTH COOLING DEMONSTRATED
- AUTOMATIC OPERATION DEMONSTRATED
 - ELECTRIC BREECH
 - LASER IGNITER
 - LASER WINDOW CLEANER
- TWO GUN TUBES FATIGUE TESTED
- TWO BREECHS FATIGUE TESTED
- 40+ km RANGE DEMONSTRATED
- OVER 4000 ROUNDS FIRED (2800 EFC)

